



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/606,623	06/25/2003	Bradley F. Eid	11336-538 (P03114US)	5038

757 7590 09/11/2006

BRINKS HOFER GILSON & LIONE
P.O. BOX 10395
CHICAGO, IL 60610

EXAMINER

PENDLETON, BRIAN T

ART UNIT	PAPER NUMBER
----------	--------------

2615

DATE MAILED: 09/11/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/606,623

Applicant(s)

EID ET AL.

Examiner

Brian T. Pendleton

Art Unit

2615

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 March 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 4-38 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 17 and 36 is/are allowed.
- 6) ☒ Claim(s) 4-7, 9, 11-16, 21-27, 30-34, 37 and 38 is/are rejected.
- 7) ☒ Claim(s) 8, 10, 18-20, 28, 29 and 35 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 June 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s).

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 4, 5, 7, 9, 11, 12, 15, 16, 21, 22, 24-26, 33, 34, 37, and 38 are rejected under 35 U.S.C. 102(b) as being anticipated by Gerzon, US Patent 5,757,927. In figure 10, Gerzon discloses a method of processing a plurality of audio input signals comprising producing a plurality of low frequency input signals using phase compensated band split filters, producing a plurality of high frequency input signals using other phase compensated band split filters and decoding the high frequency input signals using high frequency decoding matrix 23 (a matrix decoding technique). Although the low frequency input signals are inputted to a matrix 22 themselves, they bypass the matrix 23 used for the high frequency input signals. The low and high frequency input signals are separately processed and included in the output signals C_L , C_R , L_F , R_F , L_B , R_B . Claims 4, 15, and 16 are rejected. As to claim 5, column 16 lines 9-10 disclose a crossover frequency of 400 Hz. Regarding claim 7, the high frequency matrix 23 does upmixing. Per claim 9, there is disclosed filters for removing frequencies above a cut-off frequency. Regarding claims 11 and 12, the matrix 22 produces a further low frequency input signal. Regarding claims 21 and 22, the apparatus meets the claim limitations. As to claim 24, inherently the high frequency matrix 23 comprises a mixer. Per claims 25 and 34, there is a second mixer (adders) which mix the low and high frequency input signals. Regarding claim 26,

Art Unit: 2615

there is illustrated a low pass filter. As to claim 33, there is a high pass filter. Claims 37 and 38 are rejected as having the same features as the reference.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 6 and 23 rejected under 35 U.S.C. 103(a) as being unpatentable over Gerzon et al in view of Vaughan et al, US Patent Application Publication 2004/0114771. Gerzon et al do not disclose customizing the audio output signals for a listening environment. Vaughan et al teach a multi-channel audio system which has an equalization coefficient memory set which is customized for a particular vehicle (listening environment). The benefit of such customization was to create an ideal listening environment for many types of environments. It would have been obvious to one of ordinary skill in the art at the time of invention to modify Gerzon et al to include customization, as taught by Vaughan et al, for the purpose of customizing the surround sound listening environment.

Claims 13, 14, 27, and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gerzon et al in view of Liu. Gerzon et al do not disclose producing a further low frequency input signal using low frequency effects signal. Liu discloses a bass management system comprising a plurality of input signals L, R, C, Ls, Rs, and LFE (low frequency effects). Subwoofer summing module 602 acts as the bass management system which produces a plurality of low frequency input signals including LFE (see figure 8). The subwoofer signal (SUB) is produced using the

Art Unit: 2615

low frequency effects signal. The use of the LFE signal increases the realism of the audio environment. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Gerzon et al to include the LFE signal, as disclosed by Liu, for the purpose of improving the audio quality of the surround sound system. Claims 13 and 14 are rejected. As to claim 27, Liu discloses a left surround input signal which is in communication with low pass filter 803. As to claims 30-32, the subwoofer signal is a further low frequency input signal which uses the LFE signal.

Allowable Subject Matter

Claims 17 and 36 are allowed.

Claims 8, 10, 18-20, 28, 29, and 35 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian T. Pendleton whose telephone number is (571) 272-7527. The examiner can normally be reached on M-F 7-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian Chin can be reached on (571) 272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2615

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Brian T. Pendleton
Primary Examiner
Art Unit 2615



btp